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IS 12316-1 (1988): Non-cellulosic papers for electrical purposes, Part 1: Definitions and general requirements [ETD 2: Solid Electrical Insulating Materials and Insulation Systems]

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Indian Standard

SPECIFICATION FOR NON-CELLULOSIC PAPERS FOR ELECTRICAL PURPOSES

PART 1 DEFINITIONS AND GENERAL REQUIREMENTS

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 1

October 1988

Indian Standard

SPECIFICATION FOR NON-CELLULOSIC PAPERS FOR ELECTRICAL PURPOSES

PART 1 DEFINITIONS AND GENERAL REQUIREMENTS

0. FOREWORD

0.1 This Indian Standard (Part 1) was adopted by the Bureau of Indian Standards on 22 April 1988, after the draft finalized by the Solid Electrical Insulating Materials Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This Indian Standard (Part 1) is one of the series of Indian Standards which deals with non-cellulosic papers for electrical purposes. This series will have the following three parts:

Part 1 Definitions and general requirements

Part 2 Methods of test

Part 3 Specifications for individual materials

0.3 This standard (Part 1) covers the definitions and general requirements for non-ecllulosic papers for electrical purposes.

0.4 This standard gives the definitions and composition of aramid paper, asbesto paper, aramid (aromatic polyamide) paper, polyethylene paper, polypropylene paper, glass paper, ceramic paper and mica paper.

0.5 Cellulosic papers are covered by IS : 9335*.

0.6 In the preparation of this standard, assistance has been derived from IEC Doc : 15C (Central Office) 131 'Specification for non-cellulosic paper for electrical purposes: Part 1 Definitions and general requirements', issued by the International Electrotechnical Commission (IEC).

0.7 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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*Specification for cellulosic papers for electrical purposes.

†Rules for rounding off numerical values (*revised*).

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1. SCOPE

1.1 This standard (Part 1) covers definitions of terms used to describe non-cellulosic papers and gives general requirements including those relating to the conditions of supply.

2. DEFINITIONS

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Aramid Paper — Made of a manufactured fibre in which the fibre forming substance is a long chain synthetic polyamide having at least 85 percent of the amide linkages attached directly to two aromatic rings.

2.2 Asbesto Paper — Asbesto paper is divided into two types:

(a) *Type* 1 — Paper containing the minimum amount of organic binder and used for general electrical insulation purposes.

(b) *Type* 2 — An improved paper made from selected asbestos fibres and having a greater amount of organic binder than Type 1, giving increased mechanical strength and a smaller number of conducting paths.

2.3 Aramid (Aromatic Polyamide) Paper — Paper made from fibres and a fibrous binder material (fibrids), both consisting of a synthetic polyamide in which at least 85 percent of the amide linkages are attached directly to two aromatic rings.

2.4 Polyethylene Paper — Paper made from specially prepared polyethylene fibres. The paper making properties may be improved by adding suitable fillers and detergents.

2.5 Polypropylene Paper — Paper made from specially prepared polypropylene fibres. The paper making properties may be improved by adding suitable fillers and detergents.

2.6 Glass Paper — Paper made from glass micro-fibres. The poor fibre adhesion may be remedied by acid treatment to produce a slight gelation acting as a binder or by adding an inorganic binder.

2.7 Ceramic Paper — Paper made from ceramic fibres, for example, alumina silica paper composed of approximately 51 percent alumina ($Al_2 O_3$) and 47 percent silica (SiO_2). Ceramic papers may be modified by the use of organic fibres and/or organic binders.

2.8 Mica Paper — An insulating material free of binders which is based on small mica particles.

2.9 Calendered Paper — Paper that has been subjected to calendering.

2.10 Uncalendered Paper — Paper with a rough appearance on both sides after manufacturing.

3. GENERAL REQUIREMENTS

3.1 All material in any one consignment shall be as consistent as possible and the surface of the paper shall be free from blemishes which are likely to be detrimental to its use.

4. THICKNESS

4.1 The nominal thickness shall be as follows:

a) *Asbestos Paper* — 75, 100, 125, 150, 175, 200, 225, 250, 300, 375, 500, 600 µm.

b) *Aromatic Polyamide (Aramide) Paper, Calendered*

Type 1 : 50, 80, 100, 130, 180, 250, 300, 380 510, 610, 740, 760 µm.

Type 2 : 180, 250, 300, 380 µm.

c) *Aromatic Polyamide (Aramide) Paper Uncalendered*

130, 180, 250, 380, 510 µm.

5. PACKAGING

5.1 The paper shall be placed in a packing which ensure adequate protection during transportation, handling and storage.

6. MARKING

6.1 Each package shall have the following information clearly and indelibly marked on it:

a) Type,

b) Batch reference number,

c) Thickness of paper,

d) Outer diameter and width of roll,

e) Mass of roll,

f) Date of manufacture, and

g) Country of manufacture.

6.1.1 The non-cellulosic papers may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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